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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/736,432

12/15/2003

Alpaslan Demir

I-2-0537.1US

3424

24374 7590 09/08/2008

VOLPE AND KOENIG, P.C.  
DEPT. ICC  
UNITED PLAZA, SUITE 1600  
30 SOUTH 17TH STREET  
PHILADELPHIA, PA 19103

EXAMINER

NGUYEN, DUC M

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

09/08/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/736,432	<b>Applicant(s)</b> DEMIR ET AL.	
	<b>Examiner</b> DUC M. NGUYEN	<b>Art Unit</b> 2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/31/2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-14, 16-23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-14, 16-23 and 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/31/08</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

This action is in response to applicant's response filed on 7/31/08. Claims 10-14, 16-23, 25-27 are now pending in the present application. **This action is made final.**

### *Response to Arguments*

1. Applicant's arguments filed 7/31/08 have been fully considered but they are not persuasive.

In the response filed 7/31/08, Applicant contents that

Claims 10-14, 16-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable by U.S. Patent No. 6,721,370 (Kurihara) in view of U.S. Patent No. 5,933,112 (Hiramatsu et al.) and U.S. Patent No. 6,308,057 (Hayashi). Furthermore, claims 10-14, 16-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable by U.S. Patent No. 6,721,370 (Kurihara) in view of U.S. Patent No. 6,340,883 (Nara et al.) and U.S. Patent No. 6,587,513 (Ichihara).

Regarding claims 10 and 19, Kurihara discloses a phase correction circuit comprising a modem 22/12, a phase correction units 24/14, an automatic gain control (AGC) circuit 21/11/15 and a baseband processor 31. A modem is a well known device that is configured to modulate signals for transmission and demodulate signals that are received. The Examiner asserts that the baseband processor 31 disclosed by Kurihara (see Figure 3) is a modem. The Applicants strongly disagree. Kurihara discloses a modulator 22 and a demodulator 12 (i.e., a modem). Certainly, Kurihara does not disclose two modems in series. The baseband processor 31 outputs a transmission signal 53, a gain signal 55 and a timing signal 44. The baseband processor 31 does not modulate and demodulate signals, and thus the baseband processor 31 is not a modem. The baseband processor 31 encodes audio signals input from a microphone 33 (see column 4, lines 25-37), but does not modulate the audio signals. The modulator 22 modulates signals output by the baseband processor 31 after they are phase corrected and converted from digital signals to analog signals by a digital-to-analog (D/A) converter 23. The demodulator 12 demodulates signals input to the baseband processor 31 after the signals are converted from analog signals to digital signals by an analog-to-digital (A/D) converter 13 (see Figure 3).

In response, the examiner agrees with Applicant that a "modem" is a well known device that is configured to MODulate signals for transmission and DEModulate signals that are received. Therefore, any component that performs both of these above functions could be called a MODEM. For examples, the "MODEM" terminology is usually used to indicate a transceiver, which comprises frequency converters of a transmitter and a receiver. Here, a baseband processor can also be called a "MODEM"

since the baseband processor would MODulate voice/data (i.e, voice coding) into a baseband signal and would DEModulate baseband signal into voice/data. This is the broadest reasonable interpretation by the examiner on the terminology "MODEM" used in this application because the specification fails to describe specifically any modulator/demodulator function of the "MODEM processor". Therefore, in light of the specification, since the baseband processor in Kurihara would MODulate voice/data (i.e, voice coding) into a baseband signal and would DEModulate baseband signal into voice/data (see Fig. 3 regarding microphone 33 and speaker 32), the baseband processor in Kurihara would read on the claimed "modem processor".

Applicant further contents that

Kurihara discloses a modem 22/12 coupled to an AGC circuit 22/12. However, Kurihara fails to teach or suggest that the modem 22/12 outputs a gain control signal. Furthermore, the Applicants submit that none of Hiramatsu, Hayashi, Nara and Ichihara teach this feature.

In response, the examiner asserts that "demodulator 12" in Kurihara would simply correspond to the claimed "receiver" illustrated in Fig. 1 of the claimed invention.

For foregoing reasons, the examiner believes that the pending claims are not allowable over the cited prior art.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims **10-14, 16-23, 25-27** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claims 10, 19, the claims recite a “modem”. However, the specification fails to describe a “modulator” and a “demodulator” of the “modem”. Therefore, the claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **10-14, 16-23, 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Kurihara** in view of **Hiramatsu et al** (US **5,933,112**) and **Hayashi** (US 6,308,057).

Regarding claim **10**, **Kurihara** discloses a communication system (see Fig. 3), comprising:

- an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC being controlled by a gain control signal (see Fig. 3, refs. 15, 11); and

- an insertion phase variation compensation module (see ref. 14 in Fig. 3, phase correction unit) which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control signal (see c col. 3, lines 23-30 and ol. 3, line 47 – col. 4, line 25).

- a look up table (see Fig. 1A regarding table 2a) in communication with the modem (baseband processor 31 in Fig. 3) and the insertion phase variation compensation module (ref. 14 in Fig. 3), wherein the LUT receives the gain control signal from the modem and provides estimates of the phase offsets to the insertion phase variation compensation module as a function of the gain control signal (see col. 3, lines 6-30 and col. 3, line 47 - col. 4, line 25).

Therefore, **Kurihara** would teach all the claimed limitations except for the provided estimates include a Sin function and a Cos function of a phase offset,  $x$ . However, in an analogous art, **Hiramatsu** teaches a phase offset correction wherein estimation of compensation errors include a Sin function and a Cos function of a phase offset (see Figs. 2, 13 and col. 8, line 46 – col. 9, line 50 noting for exponential function  $e^{j\theta} = \cos \theta + j \sin \theta$ ). Therefore, it would have been obvious to one skilled in the art of phase offset correction modules to modify Kurihara to include a Sin function and a Cos

function of a phase offset to account for AFC processing errors, for further improving the performance of the receiver.

As to the limitations regarding four multipliers and two adders circuit, one skilled in the art would recognize that such circuit, as disclosed by **Hayashi** (see Fig. 2), is just the implement of the vector multiply circuit 117 in **Hiramatsu's** reference.

Regarding claims **11-14**, **Kurihara** would teach an analog-to-digital converter ADC, phase variation module and a processor as claimed (see Fig. 3 regarding refs. 13, 14, 31, 15), noting that the combination of the baseband processor 31 and gain controller 15 would function in the similar way as of the claimed "modem".

Regarding claims **16-18**, **25-27**, **29-31**, the claims are rejected for the same reason as set forth in claim 10 above regarding a Sin function and a Cos function of a phase offset,  $x$ .

Regarding claims **19-23**, the claims are rejected for the same reason as set forth in claims 11-14 above. In addition, since the use of an IC circuit for a CDMA communication device as disclosed by **Kurihara** is well known in the art, it would have been obvious to one skilled in the art to modify Kurihara to provide the IC circuit as claimed, for utilizing advantages of IC circuits such as cost, light weight.

6. Claims **10-14**, **16-23**, **25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Kurihara** in view of **Nara et al** (US **6,340,833**) and **Ichihara** (US 6,587,513).

Regarding claim **10**, **Kurihara** discloses a communication system (see Fig. 3), comprising:

- an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC being controlled by a gain control signal (see Fig. 3, refs. 15, 11); and

- an insertion phase variation compensation module (see ref. 14 in Fig. 3, phase correction unit) which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control signal (see c col. 3, lines 23-30 and ol. 3, line 47 – col. 4, line 25).

- a look up table (see Fig. 1A regarding table 2a) in communication with the modem (baseband processor 31 in Fig. 3) and the insertion phase variation compensation module (ref. 14 in Fig. 3), wherein the LUT receives the gain control signal from the modem and provides estimates of the phase offsets to the insertion phase variation compensation module as a function of the gain control signal (see col. 3, lines 6-30 and col. 3, line 47 - col. 4, line 25).

Therefore, **Kurihara** would teach all the claimed limitations except for the provided estimates include a Sin function and a Cos function of a phase offset,  $x$ . However, it is noted that the estimation of compensation errors that include a Sin function and a Cos function of a phase offset is well known in the art as disclosed by **Nara** (see col. 6, lines 16-28). Therefore, it would have been obvious to one skilled in the art of phase offset correction modules to modify Kurihara to include a Sin function and a Cos function of a phase offset as claimed, in order to provide the estimation more



accurately. By doing so, it is clear that **Kurihara** as modified would teach four multipliers and two adders circuit as disclosed by **Ichihara** (see Figs. 1, 8), in order to implement the complex multiplications as shown in col. 6, lines 20-30 of **Nara's** reference.

Regarding claims **11-14**, **Kurihara** would teach an analog-to-digital converter ADC, phase variation module and a processor as claimed (see Fig. 3 regarding refs. 13, 14, 31, 15), noting that the combination of the baseband processor 31 and gain controller 15 would function in the similar way as of the claimed "modem".

Regarding claims **16-18**, **25-27**, **29-31**, the claims are rejected for the same reason as set forth in claim 10 above regarding a Sin function and a Cos function of a phase offset, x.

Regarding claims **19-23**, the claims are rejected for the same reason as set forth in claims 11-14 above. In addition, since the use of an IC circuit for a CDMA communication device as disclosed by **Kurihara** is well known in the art, it would have been obvious to one skilled in the art to modify Kurihara to provide the IC circuit as claimed, for utilizing advantages of IC circuits such as cost, light weight.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window,  
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Nay Maung (Supervisor) whose telephone number is (571) 272-7882.

/Duc M. Nguyen/

Primary Examiner, Art Unit 2618

Sept 2, 2008